

Physician perceptions and recommendations about pre-hospital emergency medical services for patients with ST-elevation acute myocardial infarction in Abu Dhabi



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Introduction: Physician perceptions about emergency medical services (EMS) are important determinants of improving pre-hospital care for cardiac emergencies. No data exist on physician attitudes towards EMS care of patients with ST-Elevation Myocardial Infarction (STEMI) in the Emirate of Abu Dhabi.

Objectives: To describe the perceptions towards EMS among physicians caring for patients with STEMI in Abu Dhabi.

Methods: We surveyed a convenience sample of physicians involved in the care of patients with STEMI (emergency medicine, cardiology, cardiothoracic surgery and intensive care) in four government facilities with 24/7 Primary PCI in the Emirate of Abu Dhabi. Surveys were distributed using dedicated email links, and used 5-point Likert scales to assess perceptions and attitudes to EMS.

Results: Of 106 physician respondents, most were male (82%), practicing in emergency medicine (47%) or cardiology (44%) and the majority (63%) had been in practice for >10 years. Less than half of the responders (42%) were "Somewhat Satisfied" (35%) or "Very Satisfied" (7%) with current EMS level of care for STEMI patients. Most respondents were "Very Likely" (67%) to advise a patient with a cardiac emergency to use EMS, but only 39% felt the same for themselves or their family. Most responders were supportive (i.e. "Strongly Agree") of the following steps to improve EMS care: 12-lead ECG and telemetry to ED by EMS (69%), EMS triage of STEMI to PCI facilities (65%), and activation of PCI teams by EMS (58%). Only 19% were supportive of pre-hospital fibrinolytics by EMS. There were no significant differences in the responses among the specialties.

Conclusions: Most physicians involved in STEMI care in Abu Dhabi are very likely to advise patients to use EMS for a cardiac emergency, but less likely to do so for themselves or their families. Different specialties had concordant opinions regarding steps to improve pre-hospital EMS care for STEMI.

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Introduction

According to the World Health Organization, cardiovascular disease is the number one cause of death globally. In 2013, it was estimated that 17.5 million people died of cardiovascular disease, representing 31% of all global deaths [1]. In the United Arab Emirates (UAE), mortality statistics from 2008 to 2010 showed that cardiovascular disease was the leading cause of death among both UAE nationals and expatriates in the Emirate of Abu Dhabi [2]. The *Weqaya* program, a preventive public health initiative established by Health Authority Abu Dhabi in 2008, sets targets to address cardiovascular disease in the emirate. By 2015, the aim is to reduce cardiovascular disease events by 10% and by 2030, an expected 40% reduction in events and 75% reduction in mortality [3].

In acute coronary syndromes (ACS), and in particular ST elevation myocardial infarction (STEMI), prompt reopening of occluded vessels is essential in order to restore myocardial perfusion [4]. Evidence has linked longer treatment delays with increased mortality [5,6]. Therefore, all possible measures should be undertaken to minimize the time from symptom onset to reperfusion of the ischemic area [7]. While improving door-to-balloon times is a critical component of STEMI care, it may not always translate into direct improvements in mortality, suggesting that the time before arrival at the hospital may be just as important [8]. Both the time from arrival to electrocardiogram (ECG) and the time from ECG to catheterization laboratory activation are shorter in patients transported by emergency medical services (EMS), with some data indicating an improved outcome in patients transported by EMS [9-12].

These findings highlight the importance of patients utilizing EMS, along with rapid and effective EMS treatment and transport, in minimizing total ischemic time [13,14].

A particular benefit of EMS transport of STEMI patients is the ability to acquire a 12-lead ECG before arrival at the hospital, where the ECG can be transmitted to the hospital, triggering the activation of the catheterization laboratory to be ready upon the patient's arrival and thereby significantly reducing the time from symptom onset to reperfusion [15]. A study showed that this process saved more time (up to 15.4 minutes) than any other intervention [16].

While private transport can be quicker, door-to-balloon time is considerably shorter for patients

Abbreviations

ACS	acute coronary syndromes
EMS	emergency medical services
Gulf RACE	Gulf Registry of Acute Coronary Events
UAE	United Arab Emirates
ED	emergency department
PCI	percutaneous coronary intervention

using EMS. This is particularly true in the West where many systems have excellent prehospital advanced life support [17]. However, these advantages gained by EMS transport are limited in many other countries. While EMS protocols in Abu Dhabi currently allow for the performance of a 12-lead ECG, there is no system to transmit data to receiving facilities. Systematic catheterization laboratory activation by both EMS and pre-hospital care physicians has been demonstrated to be both feasible and accurate [18].

The Gulf Registry of Acute Coronary Events (Gulf RACE), representing the Arab Gulf States, revealed that EMS was not a common mode of transport utilized by STEMI patients (chosen by only 17% of patients), similar to findings in other international studies [19-21]. While the patient clearly has a stake in making the decision to use EMS or private transport, the physician also plays an intimate role, with involvement in patient education and guidance at discharge. Understanding physicians' perceptions of transportation practices can ultimately help improve access for STEMI patients.

The objective of the present study is to describe perceptions towards EMS among physicians caring for patients with STEMI in Abu Dhabi.

Methods

Study setting

The Emirate of Abu Dhabi covers an area of 83,600 km² and has a population of 2.33 million (of which 475,000 are UAE nationals). There are five government-funded facilities that operate cardiac catheterization services, four of which are under the Abu Dhabi Health Services Company (SEHA) and one operated by the Directorate of Medical Services of the UAE Armed Forces. EMS are operated by the Abu Dhabi Police Emergency and Public Safety Department, in conjunction with National Ambulance Company LLC, which provides emergency medical technicians and paramedics. EMS are able to perform 12-lead ECG, but at the time of writing, there is no pre-hospital telemetry to catheterization

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